Package 'rfars'

July 23, 2025

```
Title Download and Analyze Crash Data
Version 1.2.0
Description Download crash data from the National Highway Traffic Safety Administration and pre-
     pare it for research.
License CC0
Encoding UTF-8
LazyData true
Imports data.table, downloader, dplyr, haven, janitor, lubridate,
     magrittr, purrr, readr, rlang, sas7bdat, stringr, tidyr,
     tidyselect, zoo
RoxygenNote 7.2.3
Depends R (>= 3.5.0)
Suggests knitr, rmarkdown, leaflet, leaflet.extras, ggplot2, scales,
     stargazer, viridis, rbenchmark, openxlsx, lme4, tidyverse,
     tidytext
VignetteBuilder knitr
URL https://github.com/s87jackson/rfars
BugReports https://github.com/s87jackson/rfars/issues
NeedsCompilation no
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Repository CRAN
Date/Publication 2024-04-06 04:40:02 UTC
```

Type Package

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alcohol 3

Description

These internal functions take the FARS object created by use_fars and look for various cases, such as distracted or drowsy drivers.

Usage

```
alcohol(df)
```

Arguments

df

The FARS or GESCRSS data object to be searched.

appendRDS

(Internal) Append RDS files

Description

```
(Internal) Append RDS files
```

Usage

```
appendRDS(object, file, wd)
```

Arguments

object The object to save or append

file The name of the file to be saved to be saved

wd The directory to check

4 bicyclist

```
auto_label_unlabeled_values
```

(Internal) Label unlabelled values in imported SAS files

Description

(Internal) Label unlabelled values in imported SAS files

Usage

```
auto_label_unlabeled_values(lbl_vector, wd = wd, x = x, varname)
```

Arguments

lbl_vector A vector with labels

wd Working directory for files

x NCSA table name (sas file name)

varname Variable name or label

bicyclist

(Internal) Find crashes involving bicyclists

Description

These internal functions take the FARS object created by use_fars and look for various cases, such as distracted or drowsy drivers.

Usage

```
bicyclist(df)
```

Arguments

df

The FARS or GESCRSS data object to be searched.

compare_counts 5

Description

Compare counts generated by counts()

Usage

```
compare_counts(
   df,
   interval = c("year", "month")[1],
   what = c("crashes", "fatalities", "injuries", "people")[1],
   where = list(states = "all", region = c("all", "ne", "mw", "s", "w")[1], urb = c("all",
        "rural", "urban")[1]),
   who = c("all", "drivers", "passengers", "bicyclists", "pedestrians")[1],
   involved = NULL,
   what2 = what,
   where2 = where,
   who2 = who,
   involved2 = involved
)
```

Arguments

df	The input FARS object.
interval	The interval in which to count: months or years.
what	What to count: crashes, fatalities, or people involved.
where	Where to count, a list with up to three elements: states ("all" by default), region ("all"), urb ("all")
who	The type of person to count: all (default) drivers, passengers, pedestrians, or bicyclists.
involved	Factors involved with the crash. Can be any of: distracted driver, police pursuit, motorcycle, pedalcyclist, bicyclist, pedestrian, pedbike, young driver, older driver, speeding, alcohol, drugs, hit and run, roadway departure, rollover, or large trucks.
what2	Comparison point for 'what' (set to 'what' unless specified).
where2	Comparison point for 'where' (set to 'where' unless specified).
who2	Comparison point for 'who' (set to 'who' unless specified).
involved2	Comparison point for 'involved' (set to 'involved' unless specified).

Value

A tibble of counts.

6 counts

Examples

```
## Not run:
    compare_counts(
        get_fars(years = 2020, states="Virginia"),
        where = list(urb="rural"),
        where2 = list(urb="urban")
      )
## End(Not run)
```

counts

Generate counts

Description

Use FARS or GES/CRSS data to generate commonly requested counts.

Usage

```
counts(
    df,
    what = c("crashes", "fatalities", "injuries", "people")[1],
    interval = c("year", "month")[1],
    where = list(states = "all", region = c("all", "ne", "mw", "s", "w")[1], urb = c("all",
        "rural", "urban")[1]),
    who = c("all", "drivers", "passengers", "bicyclists", "pedestrians")[1],
    involved = NULL,
    filterOnly = FALSE
)
```

Arguments

filterOnly

df	The input data object (must be of class 'FARS' or 'GESCRSS' as is produced by get_fars() and get_gescrss()).
what	What to count: crashes (the default), fatalities, injuries, or people involved.
interval	The interval in which to count: months or years (the default).
where	Where to count. Must be a list with any of the elements: states (can be 'all', full or abbreviated state names, or FIPS codes), region ('all', 'ne', 'mw', 's', or 'w'; short for northeast, midwest, south, and west), urb ('all', 'rural', or 'urban'). Any un-specified elements are set to 'all' by default.
who	The type of person to count: 'all' (default) 'drivers', 'passengers', 'pedestrians', or 'bicyclists'.
involved	Factors involved with the crash. Can be any of: 'distracted driver', 'police pursuit', 'motorcycle', 'pedalcyclist', 'bicyclist', 'pedestrian', 'pedbike', 'young driver', 'older driver', 'speeding', 'alcohol', 'drugs', 'hit and run', 'roadway departure', 'rollover', or 'large trucks'. NULL by default.

Logical, whether to only filter data or reduce to counts (FALSE by default).

distracted_driver 7

Value

Either a filtered tibble (filterOnly=TRUE) or a tibble of counts (filterOnly=FALSE). If filterOnly=TRUE, the tibble that is returned is the 'flat' tibble from the input FARS object, filtered according to other parameters.

If 'df' is a GESCRSS object, the counts returned are the sum of the appropriate weights.

Examples

```
## Not run:
    counts(get_fars(years = 2019), where = list(states="Virginia", urb="rural"))
## End(Not run)

distracted_driver (Internal) Find crashes involving distracted drivers
```

Description

These internal functions take the FARS object created by use_fars and look for various cases, such as distracted or drowsy drivers.

Usage

```
distracted_driver(df)
```

Arguments

df

The FARS or GESCRSS data object to be searched.

download_fars

(Internal) Download FARS data files

Description

Download files from NHTSA, unzip, and prepare them.

Usage

```
download_fars(years, dest_raw, dest_prepd, states)
```

Arguments

years	Years to be downloade	d, in yyyy	(character or numeric	formats)
-------	-----------------------	------------	-----------------------	----------

dest_raw Directory to store raw CSV files
dest_prepd Directory to store prepared CSV files
states (Optional) Inherits from get_fars()

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Details

Raw files are downloaded from NHTSA.

Value

Nothing directly to the current environment. Various CSV files are stored either in a temporary directory or dir as specified by the user.

download_gescrss

(Internal) Download GES/CRSS data files

Description

Download files from NHTSA, unzip, and prepare them.

Usage

```
download_gescrss(years, dest_raw, dest_prepd, regions)
```

Arguments

years Years to be downloaded, in yyyy (character or numeric formats)

dest_raw Directory to store raw CSV files

dest_prepd Directory to store prepared CSV files regions (Optional) Inherits from get_gescrss()

Details

Raw files are downloaded directly from NHTSA.

Value

Nothing directly to the current environment. Various CSV files are stored either in a temporary directory or dir as specified by the user.

driver_age 9

driver_age	(Internal) Find crashes involving drivers of a given age

Description

These internal functions take the FARS object created by use_fars and look for various cases, such as distracted or drowsy drivers.

Usage

```
driver_age(df, age_min, age_max)
```

Arguments

df	The FARS or GESCRSS	data object to be searched.

age_min Lower bound on driver age (inclusive).

age_max Upper bound on driver age (inclusive).

drugs (Internal) Find crashes involving drugs

Description

These internal functions take the FARS object created by use_fars and look for various cases, such as distracted or drowsy drivers.

Usage

```
drugs(df)
```

Arguments

df The FARS or GESCRSS data object to be searched.

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fars_codebook

FARS Codebook

Description

A table describing each FARS variable name, value, and corresponding value label.

Usage

fars_codebook

Format

A data frame with 132,454 rows and 8 variables:

source The source of the data (either FARS or GES/CRSS)

years Years of the data element definition.

file The data file that contains the given variable.

name_ncsa The original name of the data element.

name rfars The modified data element name used in rfars

label The label of the data element itself (not its constituent values).

value The original value of the data element.

value_label The de-coded value label.

Details

This codebook serves as a useful reference for researchers using FARS data. The 'source' variable is intended to help combine with the gescrss_codebook. Data elements are relatively stable but are occasionally discontinued, created anew, or modified. The 'year' variable helps indicate the availability of data elements, and differentiates between different definitions over time. Users should always check for discontinuities when tabulating cases.

The 'file' variable indicates the file in which the given data element originally appeared. Here, files refers to the SAS files downloaded from NHTSA. Most data elements stayed in their original file. Those that did not were moved to the multi_ files. For example, 'weather' originates from the 'accident' file, but appears in the multi_acc data object created by rfars.

The 'name_ncsa' variable describes the data element's name as assigned by NCSA (the organization within NHTSA that manages the database). To maximize compatibility between years and ease of use for programming, 'name_rfars' provides a cleaned naming convention (via janitor::clean_names()). Both names are provided here to help users find the corresponding entry in the Analytical User's Manual but only the latter are used in the data produced by get fars().

Each data element has a 'label', a more human-readable version of the element names. For example, the label for 'road_fnc' is 'Roadway Function Class'. These are not definitions but may provide enough information to help users conduct their analysis. Consult the Analytical User's Manual for definitions and further details.

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Each data element has multiple 'value'-'value_label' pairs: 'value' represents the original, non-human-readable value (usually a number), and 'value_label' represents the corresponding text value. For example, for 'road_fnc', 1 (the 'value') corresponds to 'Rural-Principal Arterial-Interstate' (the 'value_label'), 2 corresponds to 'Rural-Principal Arterial-Other', etc.

See Also

"gescrss_codebook"

geo_relations

Synonym table for various geographical scales

Description

A dataset providing different ways to refer to states and counties.

Usage

geo_relations

Format

A data frame with 3,142 rows and 6 variables:

fips_state 2-digit FIPS code indicating a state

fips_county 3-digit FIPS code indicating a county within a state

fips_tract 6-digit FIPS code indicating a tract within a county

state_name_abbr 2-character, capitalized state abbreviation

state_name_full fully spelled and case-sensitive state name

county_name_abbr abbreviated county name (usually minus the word 'County')

county_name_full fully spelled and case-sensitive county name

region fully spelled out and case-sensitive NHTSA region and constituent states

region_abbr abbreviated NHTSA region (ne, mw, s, w)

Source

https://www.census.gov/geographies/reference-files/2015/demo/popest/2015-fips.html

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gescrss_codebook

GESCRSS Codebook

Description

A table describing each GESCRSS variable name, value, and corresponding value label.

Usage

gescrss_codebook

Format

A data frame with 85,907 rows and 8 variables:

source The source of the data (either FARS or GESCRSS)

years Years of the data element definition.

file The data file that contains the given variable.

name_ncsa The original name of the data element.

name rfars The modified data element name used in rfars

label The label of the data element itself (not its constituent values).

value The original value of the data element.

value_label The de-coded value label.

Details

This codebook serves as a useful reference for researchers using GES/CRSS data. The 'source' variable is intended to help combine with the fars_codebook. Data elements are relatively stable but are occasionally discontinued, created anew, or modified. The 'year' variable helps indicate the availability of data elements, and differentiates between different definitions over time. Users should always check for discontinuities when tabulating cases.

The 'file' variable indicates the file in which the given data element originally appeared. Here, files refers to the SAS files downloaded from NHTSA. Most data elements stayed in their original file. Those that did not were moved to the multi_ files. For example, 'weather' originates from the 'accident' file, but appears in the multi_acc data object created by rfars.

The 'name_ncsa' variable describes the data element's name as assigned by NCSA (the organization within NHTSA that manages the database). To maximize compatibility between years and ease of use for programming, 'name_rfars' provides a cleaned naming convention (via janitor::clean_names()). Both names are provided here to help users find the corresponding entry in the CRSS User Manual but only the latter are used in the data produced by get gescrss().

Each data element has a 'label', a more human-readable version of the element names. For example, the label for 'harm_ev' is 'First Harmful Event'. These are not definitions but may provide enough information to help users conduct their analysis. Consult the CRSS User Manual for definitions and further details.

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Each data element has multiple 'value'-'value_label' pairs: 'value' represents the original, non-human-readable value (usually a number), and 'value_label' represents the corresponding text value. For example, for 'harm_ev', 1 (the 'value') corresponds to 'Rollover/Overturn' (the 'value_label'), 2 corresponds to 'Fire/Explosion', etc.

See Also

"fars_codebook"

get_fars

Get FARS data

Description

Bring FARS data into the current environment, whether by downloading it anew or by using preexisting files.

Usage

```
get_fars(
  years = 2011:2022,
  states = NULL,
  dir = NULL,
  proceed = FALSE,
  cache = NULL
)
```

Arguments

years	Years to be downloaded, in yyyy (character or numeric formats), currently limited to 2011-2021 (the default).
states	States to keep. Leave as NULL (the default) to keep all states. Can be specified as full state name (e.g. "Virginia"), abbreviation ("VA"), or FIPS code (51).
dir	Directory in which to search for or save a 'FARS data' folder. If NULL (the default), files are downloaded and unzipped to temporary directories and prepared in memory.
proceed	Logical, whether or not to proceed with downloading files without asking for user permission (defaults to FALSE, thus asking permission)
cache	The name of an RDS file to save or use. If the specified file (e.g., 'myFARS.rds') exists in 'dir' it will be returned; if not, an RDS file of this name will be saved in 'dir' for quick use in subsequent calls.

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Details

This function downloads raw data from NHTSA. If no directory (dir) is specified, SAS files are downloaded into a tempdir(), where they are also prepared, combined, and then brought into the current environment. If you specify a directory (dir), the function will look there for a 'FARS data' folder. If not found, it will be created and populated with raw and prepared SAS and RDS files. If the directory is found, the function makes sure all requested years are present and asks permission to download any missing years.

The object returned is a list with class 'FARS'. It contains six tibbles: flat, multi_acc, multi_veh, multi_per, events, and codebook.

Flat files are wide-formatted and presented at the person level. All *crashes* involve at least one motor *vehicle*, each of which may contain one or multiple *people*. These are the three entities of crash data. The flat files therefore repeat some data elements across multiple rows. Please conduct your analysis with your entity in mind.

Some data elements can include multiple values for any data level (e.g., multiple weather conditions corresponding to the crash, or multiple crash factors related to vehicle or person). These elements have been collected in the yyyy_multi_[acc/veh/per].rds files in long format. These files contain crash, vehicle, and person identifiers, and two variables labelled name and value. These correspond to variable names from the raw data files and the corresponding values, respectively.

The events tibble provides a sequence of events for all vehicles involved in the crash. See Crash Sequences vignette for an example.

Finally, the codebook tibble serves as a searchable codebook for all files of any given year.

Please review the FARS Analytical User's Manual

Value

A FARS data object (list of six tibbles: flat, multi_acc, multi_veh, multi_per, events, and codebook), described below.

Examples

```
## Not run:
   myFARS <- get_fars(years = 2021, states = "VA")
## End(Not run)</pre>
```

get_gescrss

Get GES/CRSS data

Description

Bring GES/CRSS data into the current environment, whether by downloading it anew or by using pre-existing files.

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Usage

```
get_gescrss(
  years = 2011:2022,
  regions = c("mw", "ne", "s", "w"),
  dir = NULL,
  proceed = FALSE,
  cache = NULL
)
```

Arguments

Years to be downloaded, in yyyy (character or numeric formats), currently limited to 2011-2021.

regions (Optional) Regions to keep: mw=midwest, ne=northeast, s=south, w=west.

dir Directory in which to search for or save a 'GESCRSS data' folder. If NULL (the default), files are downloaded and unzipped to temporary directories and prepared in memory.

proceed Logical, whether or not to proceed with downloading files without asking for user permission (defaults to FALSE, thus asking permission)

cache The name of an RDS file to save or use. If the specified file (e.g., 'myFARS.rds')

exists in 'dir' it will be returned; if not, an RDS file of this name will be saved

in 'dir' for quick use in subsequent calls.

Details

This function downloads raw data from the GES and CRSS crash databases. If no directory (dir) is specified, raw CSV files are downloaded into a tempdir(), where they are also prepared, combined, and then brought into the current environment. If you specify a directory (dir), the function will look there for a 'GESCRSS data' folder. If not found, it will be created and populated with raw and prepared SAS and RDS files. If the directory is found, the function makes sure all requested years are present and asks permission to download any missing years.

The object returned is a list with class 'GESCRSS'. It contains six tibbles: flat, multi_acc, multi_veh, multi_per, events, and codebook.

Flat files are wide-formatted and presented at the person level. All *crashes* involve at least one motor *vehicle*, each of which may contain one or multiple *people*. These are the three entities of crash data. The flat files therefore repeat some data elements across multiple rows. Please conduct your analysis with your entity in mind.

Some data elements can include multiple values for any data level (e.g., multiple weather conditions corresponding to the crash, or multiple crash factors related to vehicle or person). These elements have been collected in the yyyy_multi_[acc/veh/per].rds files in long format. These files contain crash, vehicle, and person identifiers, and two variables labelled name and value. These correspond to variable names from the raw data files and the corresponding values, respectively.

The events tibble provides a sequence of events for all vehicles involved in the crash. See Crash Sequences vignette for an example.

The codebook tibble serves as a searchable codebook for all files of any given year.

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Please review the CRSS Analytical User's Manual

Regions are as follows: mw = Midwest = OH, IN, IL, MI, WI, MN, ND, SD, NE, IA, MO, KS ne = Northeast = PA, NJ, NY, NH, VT, RI, MA, ME, CT s = South = MD, DE, DC, WV, VA, KY, TN, NC, SC, GA, FL, AL, MS, LA, AR, OK, TX w = West = MT, ID, WA, OR, CA, NV, NM, AZ, UT, CO, WY, AK, HI

Value

A GESCRSS data object (a list with six tibbles: flat, multi_acc, multi_veh, multi_per, events, and codebook).

Examples

```
## Not run:
    myGESCRSS <- get_gescrss(years = 2021, regions = "s")
## End(Not run)</pre>
```

hit_and_run

(Internal) Find hit and run crashes

Description

These internal functions take the FARS object created by use_fars and look for various cases, such as distracted or drowsy drivers.

Usage

```
hit_and_run(df)
```

Arguments

df

The FARS or GESCRSS data object to be searched.

import_multi

(Internal) Import the multi_files

Description

An internal function that imports the multi_ files

Usage

```
import_multi(filename, where)
```

Arguments

filename (e.g. "multi_acc.csv") to be imported

where The directory to search within

large_trucks 17

large_trucks

(Internal) Find crashes involving large trucks

Description

These internal functions take the FARS object created by use_fars and look for various cases, such as distracted or drowsy drivers.

Usage

```
large_trucks(df)
```

Arguments

df

The FARS or GESCRSS data object to be searched.

make_all_numeric

(Internal) Make id and year numeric

Description

(Internal) Make id and year numeric

Usage

```
make_all_numeric(df)
```

Arguments

df

The input dataframe

make_id

(Internal) Generate an ID variable

Description

(Internal) Generate an ID variable

Usage

```
make_id(df)
```

Arguments

df

The dataframe from which to make the id

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motorcycle

(Internal) Find crashes involving motorcycles

Description

These internal functions take the FARS object created by use_fars and look for various cases, such as distracted or drowsy drivers.

Usage

```
motorcycle(df)
```

Arguments

df

The FARS or GESCRSS data object to be searched.

pedalcyclist

(Internal) Find crashes involving pedalcyclists

Description

These internal functions take the FARS object created by use_fars and look for various cases, such as distracted or drowsy drivers.

Usage

```
pedalcyclist(df)
```

Arguments

df

The FARS or GESCRSS data object to be searched.

pedbike

(Internal) Find crashes involving pedstrians or bicyclists

Description

These internal functions take the FARS object created by use_fars and look for various cases, such as distracted or drowsy drivers.

Usage

```
pedbike(df)
```

Arguments

df

The FARS or GESCRSS data object to be searched.

pedestrian 19

pedestrian

(Internal) Find crashes involving pedestrians

Description

These internal functions take the FARS object created by use_fars and look for various cases, such as distracted or drowsy drivers.

Usage

```
pedestrian(df)
```

Arguments

df

The FARS or GESCRSS data object to be searched.

police_pursuit

(Internal) Find crashes involving police pursuits

Description

These internal functions take the FARS object created by use_fars and look for various cases, such as distracted or drowsy drivers.

Usage

```
police_pursuit(df)
```

Arguments

df

The FARS or GESCRSS data object to be searched.

20 prep_gescrss

prep_fars	Prepare downloaded FARS files for use

Description

Prepare downloaded FARS files for use

Usage

```
prep_fars(y, wd, rawfiles, prepared_dir, states)
```

Arguments

y year, to be passed from prep_fars

wd working directory, , to be passed from prep_fars

rawfiles dataframe translating filenames into standard terms, to be passed from prep_fars prepared_dir the location where prepared files will be saved, to be passed from prep_fars

states (Optional) Inherits from get_fars()

Value

Produces six files: yyyy_flat.rds, yyyy_multi_acc.rds, yyyy_multi_veh.rds, yyyy_multi_per.rds, yyyy_events.rds, and codebook.rds

prep_gescrss

Prepare downloaded GES/CRSS files for use

Description

Prepare downloaded GES/CRSS files for use

Usage

```
prep_gescrss(y, wd, rawfiles, prepared_dir, regions)
```

Arguments

y year, to be passed from prep_gescrss

wd working directory, , to be passed from prep_gescrss

rawfiles dataframe translating filenames into standard terms, to be passed from prep_gescrss prepared_dir the location where prepared files will be saved, to be passed from prep_gescrss

regions (Optional) Inherits from get_gescrss()

read_basic_sas 21

Value

Produces six files: yyyy_flat.rds, yyyy_multi_acc.rds, yyyy_multi_veh.rds, yyyy_multi_per.rds, yyyy_events.rds, and codebook.rds

read_basic_sas

(Internal) Takes care of basic SAS file reading

Description

(Internal) Takes care of basic SAS file reading

Usage

```
read_basic_sas(
    x,
    wd,
    rawfiles,
    catfile = paste0(wd, "formats.sas7bcat"),
    imps = NULL,
    omits = NULL
)
```

Arguments

x The cleaned name of the data table (SAS7BDAT).

wd The working directory for these files

rawfiles The data frame connecting raw filenames to cleaned ones.

catfile The location of the sas7bcat file

imps A named list to be passed to use_imp(). Each item's name represents the non-

imputed variable name; the item itself represents the related imputed variable.

omits Character vector of columns to omit

See Also

```
read_basic_sas_nocat
```

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read_basic_sas_nocat	(Internal) Takes care of basic SAS file reading when the bcat file cre-
	ates an issue

Description

(Internal) Takes care of basic SAS file reading when the bcat file creates an issue

Usage

```
read_basic_sas_nocat(x, wd, rawfiles, imps = NULL, omits = NULL)
```

Arguments

X	The cleaned name	e of the data table	(SAS7BDAT).

wd The working directory for these files

rawfiles The data frame connecting raw filenames to cleaned ones.

imps A named list to be passed to use_imp(). Each item's name represents the non-

imputed variable name; the item itself represents the related imputed variable.

omits Character vector of columns to omit

road_depart	(Internal) Find crashes involving road departures

Description

These internal functions take the FARS object created by use_fars and look for various cases, such as distracted or drowsy drivers.

Usage

```
road_depart(df)
```

Arguments

df The FARS or GESCRSS data object to be searched.

rollover 23

rollover

(Internal) Find crashes involving rollovers

Description

These internal functions take the FARS object created by use_fars and look for various cases, such as distracted or drowsy drivers.

Usage

```
rollover(df)
```

Arguments

df

The FARS or GESCRSS data object to be searched.

speeding

(Internal) Find crashes involving speeding

Description

These internal functions take the FARS object created by use_fars and look for various cases, such as distracted or drowsy drivers.

Usage

```
speeding(df)
```

Arguments

df

The FARS or GESCRSS data object to be searched.

24 use_gescrss

use_fars	
----------	--

(Internal) Use FARS data files

Description

Compile multiple years of prepared FARS data.

Usage

```
use_fars(dir, prepared_dir, cache)
```

Arguments

```
dir Inherits from get_fars().

prepared_dir Inherits from get_fars().

cache Inherits from get_fars().
```

Value

Returns an object of class 'FARS' which is a list of six tibbles: flat, multi_acc, multi_veh, multi_per, events, and codebook.

use_gescrss

(Internal) Use GESCRSS data files

Description

Compile multiple years of prepared GESCRSS data.

Usage

```
use_gescrss(dir, prepared_dir, cache)
```

Arguments

```
dir Inherits from get_gescrss().

prepared_dir Inherits from get_gescrss().

cache Inherits from get_gescrss().
```

Value

Returns an object of class 'GESCRSS' which is a list of six tibbles: flat, multi_acc, multi_veh, multi_per, events, and codebook.

use_imp 25

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use_1mp	(Internal)	i use_	_unp

Description

An internal function that uses imputed variables (present in many GES/CRSS tables)

Usage

```
use_imp(df, original, imputed, show = FALSE)
```

Arguments

df The input data frame.

original The original, non-imputed variable.

imputed The imputed variable (often with an _im suffix).

show Logical (FALSE by default) Show differences between original and imputed

values.

validate_states (Internal) Validate user-provided list of states

Description

(Internal) Validate user-provided list of states

Usage

```
validate_states(states)
```

Arguments

states States specified in get_fars, prep_fars, or counts

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